



FRONTIERS IN TRACE ELEMENTS RESEARCH AND EDUCATION



10th

International Conference
on the Biogeochemistry
of Trace Elements

Conference Program

13 - 18 July, 2009

Chihuahua, Chih. Mexico

<http://icobte2009.cimav.edu.mx>



CONTENTS

Messages.....	3
10 th ICOBTE Chair and Host.....	3
Local Organizing.....	9
Committee.....	9
Editorial Committee.....	9
International Committee.....	9
Sponsorship Committee.....	9
Scholarship Committee.....	9
Plenary Speakers.....	10
General Information.....	12
Venue.....	12
Registration.....	12
Social Program.....	13
Technical Program.....	13
Special Symposia.....	14
Technical Sessions.....	15
Program Timetable.....	16
Morning, Tuesday 14 July 2009.....	16
Afternoon Tuesday 14 July 2009.....	18
Morning, Wednesday 15 July 2009.....	19
Morning, Wednesday 15 July 2009.....	20
Afternoon, Wednesday 15 July 2009.....	21
Afternoon, Wednesday 15 July 2009.....	22
Morning, Thursday 16 July 2009.....	23
Morning, Thursday 16 July 2009.....	24
Afternoon, Thursday 16 July 2009.....	25
Poster Sessions.....	27
Poster Index.....	28
PARTICIPANTS.....	38
SPONSORS.....	48
ADVANCED MATERIALS RESEARCH CENTER.....	1

Messages

10th ICOBTE Chair and Host



At this startling, awful peal of thunder, the dying man suddenly raised his head from Hüttenbrenner's arm, stretched out his own right arm majestically—like a general giving orders to an army. This was but for an instant; the arm sunk back; he fell back; Beethoven was dead.

—*Thayer's summary of Hüttenbrenner's account of Beethoven's death*

Alexander Thayer's recount narrates the composer's last gasp for life through the eyes of his sister-in-law. It is now widely accepted in the medical circle that Beethoven's demise was a result of lead accumulation in his organs over a span of decades, causing the gradual failure of his health. The lead poisoning could be attributed to his keen love of wine---which used to be stored in leaded decanters, served in leaded cups, and often laced with lead acetate.

It is my honor and distinct privilege to welcome you all to the *10th International Conference on the Biogeochemistry of Trace Elements* (ICOBTE) taking place in Chihuahua, Mexico. It is rather amazing that in spite of the global recession, the swine flu pandemic, and the unrest and violence in many parts of the world that we are still able to attract so many students, scientists, and other professionals to join us for this great event. This indicates a great deal of satisfaction and gratitude for my fellow local organizers from CIMAV led by our Director Jesús Gonzalez, for my fellow members of the national organizing committee, and for the international organizers and key officers of the ISTE^B (*International Society of Trace Element Biogeochemistry*) specially Gary Pierzynski and Magdi Selim. For us all to overcome the unforeseen circumstances that may well have prevented this great event to occur seems like a miracle to me.

My especial thanks and admiration to Domy Adriano, founder of the ICOBTE, for his enthusiasm and relentless attention to details that has been a key factor in the organizing of this conference. And we cannot overlook the dedicated efforts of Enzo Lombi for coordinating the review of the submitted abstracts and the members of the International Committee for their share of the review process. Such effort helped ensure the acceptance and publication of only high quality papers. My special appreciation also goes to the plenary speakers (Tara Sabo-Atwood, Fangjie Zhao, Erik Smolders, and Esther Orozco), to the organizers of the special symposia (Pablo

Higueras and Rocio Millan, Rainer Schulin and Magdi Selim, Anna Knox and Daniel D. Reible, Walter Wenzel et al, Steve McGrath et al, Jorge Gardea et al, Wanderley Melo et al, and Alan Baker et al.), and to the chairs of the technical sessions.

The quality of human life utterly depends on the chemical composition of our food and the environment. What makes *trace elements* a special group of contaminants is the dual behavior that their concentration entails. The classic lead intoxication of Beethoven is just an example of how certain elements (more appropriately heavy metals and metalloids) could play a role in environmental health. Other metal(loid)s of great environmental significance, in a global perspectives, include mercury, cadmium and arsenic. They could intoxicate human and animals by ingestion (drinking water or food consumption), skin contact, or inhalation. While certain trace elements are known for their toxicity potential, other elements are life's essential (such as zinc, copper, iron, manganese, molybdenum---known as micronutrients in plant and animal nutrition), in that they are needed by biota (plants, animals, and human) in minute amounts to sustain normal life. Even the generally considered toxic chromium is essential for animal and human functions if taken in the right chemical form (hexavalent Cr is toxic but not the trivalent form).

It is our main goal in this 10th ICOBTE to sustain our quest to understand more fully the behavior of this ubiquitous group of substances in our environment---how they cycle in the soil, water, and in the food chain and in what threshold levels in the various media they could affect the biota. It is also our challenge to identify the most interesting pathways from the sources---like contaminated environments or emission sources to the receptor biota especially to the most sensitive segment of the population---the children. So too are ways to negate the potential effects of the hazardous metal(loid)s by remediating or stabilizing the seriously polluted environments. With advances in technological innovations, we have already embarked on looking into the dynamics and mechanisms controlling them at molecular level and shedding more light as to their bioavailability and biotoxicity.

Here in Chihuahua and perhaps other parts of Mexico we have demonstrated that to effectively address environmental issues that may compromise human health there needs to be an academic-industry-government continuum.

Testimonial to this is the presence and participation of the Secretary of the Ministry of the Environment, Juan R. Elvira Quesada as delegated by the country's President Felipe Calderon; the Governor of the State of Chihuahua José Reyes Baeza Terrazas; the State Ministries of Tourism, Education, Industry, Urban Development and Ecology; the Mayor of Chihuahua City, Carlos Borrue; the Autonomous University of Chihuahua, and the Federal Direction of Technological Universities, headed by Hèctor Arreola. The 10th ICOBTE was made possible---thanks to the financial aid from our local and international sponsors like the Soil Science Society of America, the U.S. Army Corp of Engineers, the Metals Environmental Research Associations (MERA) and the State Ministry of Tourism headed by Hector Valle.

To all the participants and supporters of this conference, thank you all for your perseverance and confidence in us and for your spirit of collegueship.

Dra. Ma. Teresa Alarcon Herrera.
Organizer and Host of the 10th ICOBTE

President, ISTEb



On behalf of the International Society for Trace Element Biogeochemistry (ISTEB), it is my pleasure to welcome you to the 10th International Conference on the Biogeochemistry of Trace Elements (ICOBTE) in Chihuahua, Mexico. To be sure, this ICOBTE has seen significant challenges to attendance unlike any of the preceding conferences in this series. The world economy and a flu pandemic have made it difficult or impossible for many participants to travel. We have been committed to continuing this superb conference series and are pleased to have well over 150 people registered from over 26 countries.

Special thanks go to Teresa Alarcon for her tireless and excellent efforts in organizing the conference. She has had to deal with a constantly changing situation and has maintained a strong scientific program and arranged for a fabulous venue. She has had assistance from many individuals, too numerous to name here, but their efforts are also gratefully acknowledged, as are the host institution, Centro de Investigación en Materiales Avanzados, and all of the sponsors. The City of Chihuahua is a beautiful place and the warmth and hospitality of the organizers have been present in abundance since the very beginning of the site selection process in 2007.

The ICOBTE series represents a premier event for the promulgation of outstanding science in the field of trace elements. The abstracts contained in this proceeding are a testament to that fact. We trust you will find the information valuable. The efforts of the International Committee, chaired by Enzo Lombi, in reviewing the abstracts are gratefully acknowledged.

We invite your continued participation in the ICOBTE series. The 11th ICOBTE is scheduled for 2011 and details on the next venue will be available soon.

With Best Regards,

Gary Pierzynski
President, ISTEb
2007-2009

Honorary President, ISTEb



Dear Fellow Members and Supporters,

The most recent ICOBTE in Chihuahua commemorated the 10th (20 years) anniversary of this highly successful biennial series. The series had been held initially in Orlando, Florida in 1990 with about 380 international participants and was named "Trace Elements in Soils, Plants, Waters, and Animals". Due to keen interest by several big names in the field of Trace Elements, the series was formalized with its current name and was held 3 years later in Taipei, Taiwan in 1993. Thereafter the third was held in Paris, France in 1995, the fourth in Berkeley, California in 1997, the fifth in Vienna, Austria in 1999, the sixth in Guelph, Ontario, Canada (2001), the seventh in Uppsala, Sweden in 2003 that attracted the highest attendance to date of over 600, the eighth in Adelaide, Australia in 2005 and the ninth in Beijing, China in 2007.

The most recent conference marked the first of the series in Latin America, after memorable meetings in North America (3x), Europe (3x), Asia (2x), and Oceania (1x). The 10th also set new milestones in the series for having the first female organizer and host, Dra. Ma. Teresa Alarcon, for being the first in Latin America, and for conducting an international seminar focused in the remediation of contaminated sites, and a concurrent international workshop on environmental education to benefit local teachers, children and youth.

Biogeochemistry has been the thematic pillar of the ICOBTE since its inception but has evolved to also underline the importance of bioavailability and potential biotoxicity of trace elements. Also entwined in this thematic evolution is the underpinning of trace element behavior in the food chain, including animals and human to a lesser extent. More recently research emphasis has been focused on trace element dynamics in the rhizosphere and how this may shed light into phytoremediation. Also cast into the limelight is the mineral-microbe-metal(loid) interactions or more specifically biogeochemical surface chemistry. Mechanisms controlling trace element mobility and bioavailability as well as edaphic and biogeochemical factors such as chemical speciation, redox potential, pH, soil type, organic matter, etc. are being elucidated. More recently, advances in technological innovations enable students, scientists, and other professionals to conduct trace element research at the molecular level, including molecular physiology. The use of the synchrotron has led, to a large extent, to the coinage of nano-technology where the behavior of trace element nanoparticles or more specifically nanoparticle-metal(loid) interactions in soils, waters, and living tissues could be investigated.

Members and supporters of the ICOBTE, based on their extensive knowledge of the discipline have been involved in the development of regulatory, risk assessment, and remediation protocols on heavy metals in Europe, Australia, and North America. Of particular significance is the adoption of phytoremediation and soil chemo-stabilization technologies as cleanup tools, which may be particularly useful in developing countries. And several key members have led international task forces to look into the environmental importance of key metal/metalloid pollutants such as arsenic, mercury, lead, and cadmium that may have ramifications in the health of biota including plants, animals, and humans. Key members have also been involved in the founding and chief editing of new scientific journals like the International Journal of Phytoremediation and the publication of landmark articles, book chapters, and books on trace elements.

To sustain the vitality of the ICOBTE for the next 20 years, it is necessary for the members of the ISTEb to remain at the frontiers of trace element research. This can be achieved by reinvigorating the interdisciplinary and international collaborations by the members and by mentoring students and young professionals to do the same. More efforts are needed to look into urban biogeochemistry as the world population shifts toward metro-areas and their suburbs and in building more effective bridges among researchers, regulators, and industry. And finally phenomena that might influence contamination-remediation-global warming interactions should not be overlooked.

Domy Adriano

Founder of the ICOBTE, and ISTEb Honorary President

President elected, ISTEb



As president-elect of ISTEb, I would like to extend a warm welcome to all conference participants. This conference has survived all that the natural and commercial world has thrown at it over the past 6 months. I would like all delegates to join with me to applaud the determination and single-minded focus shown by our local organizer, Ma Teresa Alarcon, in making certain that we have a meeting in which we can participate.

Whilst the present conference may not be the largest that ISTEb has organized, I firmly believe that the shared sense of achievement that we should all feel by our participation will translate into a gathering that upholds the ethos and standards of previous ICOBTE conferences and takes us into a very different geo-political environment to those hosted previously in N. America, Asia, Australasia and Europe. I look forward to a learning experience, despite my advanced years, and to meet friends both old and new, in a spirit of scientific enquiry.

I sincerely hope that all delegates enjoy their participation in the meeting, return home enriched and enthusiastic and look forward to the next ICOBTE meeting. I wish the present gathering in Chihuahua every success and congratulate the organizers for upholding the ICOBTE standard.

Nicholas Lepp, President elect of ISTEb. July 2009- 2011

International Committee, 10th ICOBTE



There are many reasons to celebrate another ICOBTE conference. However this year we may have even more reasons than ever. Firstly, this is the 10th edition of the conference series. Secondly, the Organizers of ICOBTE this year had to face substantial obstacles, related to the recent flu epidemic, that were beyond their control. It is therefore with gratitude that, on the behalf of the ISTEb International Committee, I would like to thank Maria Teresa Alarcón and the Local Organizing Committee for their relentless effort which made sure that the 10th ICOBTE would run despite the odds.

ICOBTE has established itself as a fixed appointment for everybody interested in the biogeochemistry of trace elements. Over the years it has evolved to follow the scientific development in the field and, thanks to the conference and symposium organizers, has consistently delivered programs that closely follow the state-of-the-art and the most up to date knowledge. This edition of the conference will be no exception with symposia and plenary speakers tackling the most topical issues in environmental biogeochemistry, ranging from the most recent and exciting discoveries on arsenic accumulation mechanisms in plants and in the food chain to cutting-edge techniques in trace element speciation; from innovative remediation technologies to the risk assessment of nanoparticles and current development in environmental legislation.

I would also like to thank the International Committee members for assisting in peer review of the abstracts submitted to the 10th ICOBTE. Over 20 countries are represented in the International Committee, providing further confirmation of the success that this conference series has achieved internationally. I am also very pleased that many members of the current International Committee are women (over one third) and that young scientists are well represented. This to me is a clear indication that ICOBTE will continue to thrive in the future as a vehicle that fosters collaboration and as the result of a real need of this community to meet and share the most recent scientific findings.

Enzo Lombi
International Committee Chair

Committee Members

Local Organizing Committee

Ma. Teresa Alarcón H.
Jesús González H.
Luz Leal Quezada
Ignacio R. Martín D.
Erasmus Orrantia B
Nathanael Martinez
Claudia López D.
Jonathan Hernandez M.

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Miriam Z. López P.
Ma. del Rosario Delgado C.
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Daniel van der Lelie, USA
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Domy Adriano, USA
Engracia Madejon, Spain
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Fangjie Zhao, UK

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Pavel Tlustos, Czech Republic

Peter Holm, Denmark
Petra Kidd, Spain
Prosun Bhattacharya, Sweden
Rafael Clemente, Spain
Rainer Schulin, Switzerland
Robert S. Bowman, USA, (in memoriam)
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Jesus González H.
Ma. Teresa Alarcón H.

Scholarship Committee

Adalberto Benavides M.
Domy Adriano
H. Magdi Selim
Robert Bowman (in memoriam)

Plenary Speakers

Tara Sabo-Attwood (USA)



Sabo-Attwood, Tara L. is an Assistant Professor at the Department of Environmental Sciences in the University of South Carolina, USA. She graduated from the University of Connecticut in 1996 with a B.S. in Cytogenetics, and later she obtained her Ph.D. in Environmental Toxicology from the University of Florida in 2003. She has been the Coordinator of Genetic Research Programs in the Department of Pediatric Genetics of the University of Florida Cytogenetics Laboratory, Gainesville, FL. In 2004 she was an instructor of the Biology of Nutrition and Fitness in Champlain College, Burlington, VT. In 2005 she instructed Cell and Molecular Biology at Johnson State College, Johnson, VT. She has been, since 2006, an Assistant Professor for the Department of Environmental Sciences in the University of South Carolina.

Fang-Jie Zhao (United Kingdom)



Fangjie Zhao is a Principal Research Scientist in the Soil Science Department, Rothamsted Research, United Kingdom. He graduated from Nanjing Agricultural University, China (MSc, 1986) and University of Newcastle upon Tyne, UK (PhD, 1992). He has been working at Rothamsted since his initial appointment in 1992. He was promoted to Senior Research Scientist in 1996 and to Principal Research Scientist in 2002. In 2009, he was awarded an Individual Merit Promotion to Band 3 in recognition of his research achievements in several areas of soil, plant and environmental sciences, especially on crop sulphur nutrition, heavy metal hyperaccumulation and arsenic uptake mechanisms. He has published over 130 papers in peer-reviewed journals. These papers have been cited more than 4000 times. He is a guest Professor in Chinese Academy of Sciences, Chinese Academy of Agricultural Sciences and China Agricultural University. He serves as a Section Editor for Plant and Soil and as a member of the Editorial Board of Environmental Pollution. Fangjie Zhao has been an active member of ICOBTE since 1997, and has recently been elected as a member-at-large of the executive board of the International Society of Trace Element Biogeochemistry.

Erik Smolders (Belgium)



Erik Smolders is Professor at Department of Earth and Environmental Sciences at the Katholieke Universiteit Leuven, Belgium. He obtained a PhD in Agricultural Sciences in 1993 at the same institute and did post-doctoral studies at the Imperial College (U.K.), at the CSIRO, Div. of Soils, Adelaide, South Australia and at UW-Madison (WI, U.S.A.). The research focuses on bioavailability of soil contaminants, i.e. plant uptake of ^{137}Cs and Cd and toxicity of trace metals for plants and soil microbial processes in soil. This research is extended to environmental risk assessment. Current projects focus on dissolved organic matter in soil, metal speciation, soil transport processes, risk assessment and effects of metals on soil microbial processes. Erik Smolders is chair of the Scientific Committee of the Society of Toxicology and Chemistry (SETAC), is member of the International Committee of the International Society for Trace Element Biogeochemistry (ISTEB) and was Technical Editor of the Journal of Environmental Quality (2006-2008). Erik Smolders has been responsible for the risk assessment of Cd for the European Union and contributed to similar

documents for Pb, Ni, Cu, Zn, Co and Sb. In the Cd risk assessment, he was responsible for deriving soil, water and sediment limits. In addition, he contributed to the assessment of Cd exposure to man via the environment. Erik Smolders has been adviser for environmental risk assessment for the Flemish Government (OVAM), for the Federal Government (Health, Food Chain Safety and Environment) and for the European Commission (DG Environment and DG industry).

Esther Orozco (México)



Maria Esther Orozco was born in Chihuahua México. She received her bachelor's degree in Chemistry from the Autonomous University of Chihuahua and her doctorate's degree in Cell biology from the CINVESTAV, IPN, in Mexico. She is an internationally recognized biologist and researcher, winner of several awards and honors such as:

Member of the Sistema Nacional de Investigadores since 1984 (level 3), Award of the Cuban Academy of Science (1998), Medalla Pasteur 1997 (UNESCO and Pasteur Institute). International Fellow Howard Hughes Medical Institute (USA) 1991-1996 and 1997-2001, "Son de Carne y Hueso" Documentary Film with a sketch of Esther Orozco, Canal II del IPN: <http://oncvipn.net/invitro/biografias.htm>, Award Dr. J. Rosenkranz 1991 (Syntex, México), J.S. Guggenheim Foundation Fellowship 1988 (USA), Fogarty Fellowship 1987 (NIH, USA). National Prize of the Minister of Health in Mexico: "Miguel Otero" (1985). Award of the H. Consejo Universitario" Universidad Autónoma de Chihuahua (1997), "Distinguished Citizen" City Council of Chihuahua (1997), "Distinguished Citizen" City Council of Guerrero, Chihuahua, "Award to the Scientific Merit" Universidad Autónoma de Ciudad Juárez (1997), "Award to the Scientific Merit" Universidad Regional del Norte (1997). Consultant of the Minister of Health in Mexico City (1997-2000), Adviser-Consultant of the University of Mexico City (2000-a la fecha). Award for Excellence in the formation of human resource for science Award: "The Woman of the Year 2004" in the area of Health Sciences (Master Card y Glamour). UNESCO-L'Oreal for Women in Science" 2006. Medal for Scientific Merit, 2007 Congress of Mexico City (Asamblea Legislativa). Award "María Esther Orozco" to the women distinguished in science 2009, Congress of Chihuahua State.

Positions: School Teacher of elementary schools, high schools (1964-1971), Professor of CINVESTAV since 1981, Professor-Consultant of Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada (1995-2001), Visitant Professor: National Cancer Institute, Amsterdam Holland (1985), Weizman Institute, Rehovot, Israel (1980,1983), Visitant Professor, Harvard School of Public Health, Boston, USA (1987-1990). Scientific Consultant of Universidad Autónoma de la Ciudad de México (2003-2005). She has supervised 24 Ph. D, 29 M. Sc. and 15 B.Sc. research projects. She published 155 articles in peer reviewed journals. She has also written such books as: "Si la mujer está" and "Así estamos hechos¿Cómo somos? de la secuencia del DNA a la clonación". Ed. Fondo de Cultura Económico, México. 12 chapters in books, several articles of scientific divulgation, 10 scientific reports. She currently has three patents. Administration. Secretary of Planning at CINVESTAV IPN (1992-1994), Academia Coordinator of the Department of Genetics and Molecular Biology (1987), Director of the Multidisciplinary Program in Molecular Biomedicine at CICATA IPN. Coordinator of the Program of Genomic Sciences at the Universidad de la Ciudad de México. Since 2006 up to present time, she labors as the President of the Institute of Science and Technology of Mexico City.

General Information

Venue

Soberano Hotel, Chihuahua

Registration

The Registration Desk is located in the Lobby of the Diamante room from the Soberano Hotel and will be open from 18:30 to 20:30 on Monday 13 July, from 9:00 to 17:00 on Tuesday 14 (it will remain open throughout the entire conference).

Speaker Support Center

The Speaker Support Center is located in the Diamante room of the Soberano Hotel. The presentation file should be pre-loaded in the conference computer during your registration. It requested to all participants to deliver a copy of your oral presentations at the registration boot. If any situation arises that can compromise the delivery of your presentation, please contact Claudia Lopez at the registration desk.

Plenary and keynote speakers

Will be given one hour in total including 15 minutes for questions and discussions.

Oral presentation

Will be 20 minutes in total including 5 minutes for questions and discussions. (Please consider using Power Point for your presentations)

Poster Presentation

A display area will be provided. The poster must have the following dimensions: 120 cm high by 90 cm wide. The poster can be mounted with adhesive bands, which will be provided at the poster session room.

Social Program

Monday , July 13	Tuesday , July 14	Wednesday, July 15
19:30 h.	20:00 h.	19:30 h.
Welcome & Ice Breaking reception	Light & Sound	Gala Dinner
Quinta Gameros	Cathedral of Chihuahua	Government Palace

Technical Program

Date	Event	Place
Tuesday 14 to Thursday 16 9:00 – 18:00 h	Congress	El Soberano Hotel
Tuesday 14 to Thursday 16 9:00 – 13:00 h	Environmental Education Workshop Children and youth (7 -18 Years)	Colegio Palmore
Monday 13 July 8:30 – 18:00 h	International Seminar Remediation of contaminated sites	CIMAV
Friday 17 9:00 – 13:00 h	Technical Visit to Avalos Smelting Site (group of 80 participants)	Avalos
Saturday 18 Sunday 19 9:00 – 16:00 h	Technical Visit to Naica Mining site, (Crystals Cave) (group of 50 participants)	Naica Peñoles

Special Symposia

Symposium 1:

Mercury: environment and health

Chair: Pablo Higuera (Spain), Rocio Millan (Spain)

Symposium 2:

Transport/dynamics of trace elements in the root zone

Chair: Rainer Schulz (Switzerland), Magdi Selim (USA)

Symposium 3:

Fate and transport of metals in contaminated sediments - new approaches in remediation

Chair: Anna Sophia Knox (USA), Michael Paller (USA), Danny D. Reible (USA) and Domy Adriano (USA)

Symposium 4:

Bioavailability in the plant-soil system (rhizosphere)

Chair: Walter Wenzel (Austria), Markus Puschenreiter (Austria), Pavel Tlustos (Czech Republic)

Symposium 5:

Trace elements in plant nutrition

Chair: Enzo Lombi (Australia), Renato de Mello Prado (Brazil), Ronaldo Severiano Berton (Brazil)

Symposium 6:

Arsenic in the environment

Chair: Steve McGrath (U.K.), Maria Armienta (Mexico), Martha Litter (Argentina), Fangjie Zhao (UK)

Symposium 7:

Advanced analytical techniques in metal & metalloid research

Chair: Jorge Gardea T. (USA), J. R. Peralta-Videa (USA), Felix Roman (Puerto Rico)

Symposium 8:

Sustainable management of metal & metalloid polluted, marginal soils

Chair: Alan Baker (Australia), Michel Mench (France), Jaco Vangronsveld (Belgium), Daniel van der Lelie (USA)

Technical Sessions

Technical Session 1:

Phytoremediation of metals/metalloids: uptake, transport and transformation
Chairs: Rufus Chaney, Nabanita Dasgupta, Paula Madejon, Alicia Melgoza

Technical Session 2:

Contamination by trace elements: Air Pollution by metals and Metalloids; Soil; Water
Chairs: Giancarlo Renella , Tatiana Zotina, Maria E. Montero Alex Itzkandar, Eduardo Herrera.

Technical Session 3:

Advances in the use of wetlands and water treatment
Alan Baker, Gabriela Moeller Ma. Eugenia García, Lydia Hernández, Alejandra Martin D.

Technical Session 4:

Advances in remediation technologies for trace elements contaminated sites
Gary Pierzynski, D. Chidambaram, Peter Engelund Holm

Technical Session 5:

Environmental Sustainability
Chair: Michel Mench and Giancarlo Renella

Technical Session 6:

Arsenic and fluoride, water contamination and remediation processes
Chairs: Margarita Gutierrez, Josefina Rodriguez, Lena Q. Ma, Gijs Du Laing

Technical Session 7:

New analytical techniques to study the fate of trace elements in the environment
Victor Cerdá, André Rosa, Jose Peralta Videá

Technical Session 8:

Metals Environmental Research Associations – MERA
Chair: Eric Van Genderen

Technical Session 9:

Biogeochemical cycles for trace element in serpentine environments
Carlos Green, Robert Garrett

Program Timetable

Morning, Tuesday 14 July 2009

9:00-10:00	Opening Ceremony			
10:00-11:00	Plenary Speaker: Esther Orozco Biological sagacity of virus, bacteria and protozoa: Threat and challenge to human intelligence: The AH1N1 virus in Mexico 2009			
11:00-11:20	Coffee Break & Poster Session			
	Room 1	Room 2	Room 3	Room 4
	Symposium 1	Symposium 5	Technical Session 2	Technical Session 1
	Chairs: Pablo Higuera and Rocio Millán	Chair: Enzo Lombi	Chairs: Giancarlo Renella , Tatiana Zotina, Maria E. Montero	Chairs: Rufus Chaney, Nabanita Dasgupta, Paula Madejon, Alicia Melgoza
11:20-11:40	Maria Greger Water spinach forms methyl-Hg from inorganic Hg in new shoots	Cynthia Grant Effects of cropping sequence, phosphorus fertilization and tillage system on trace element concentration of durum wheat and soybean	Maria Josefa Santos Yabe Modeling competitive metal sorption in an organic soil applying Taylor-Series expansion	Michel Mench Phenotypic traits of metalicolous and non-metallicolous <i>Agrostis capillaris</i> exposed to Cu
11:40-12:00	Myriam Moreno Accumulation of Arsenic and Mercury in mojarra, catfish and carp fish species from three water reservoirs in Chihuahua State	Henner Pascale Internal phosphate fluxes are modulated by uranium contamination in <i>Arabidopsis thaliana</i> - a defensive mechanism in plants?	Christina Siebe Spatial and temporal variability of heavy metals in soils and crops irrigated with wastewater in Central Mexico	Muhammad Ehsan Zinc and cadmium uptake by <i>Lupinus uncinatus</i> S. grown in nutrient solution
12:00-12:20	Kathryn Conko Exposure potential of As and Hg to residents of Gorlovka, Ukraine	Matthieu Bravin Is copper uptake kinetic the rate-limiting process of copper bioavailability to durum wheat in contaminated soils?	Giancarlo Renella Greenhouse gas emission from Cu-contaminated soils subjected to phytoremediation	Guadalupe de la Rosa Phytomanagement of mine tailings in Guanajuato, México
12:20-12:40	Rocio Millán Gomez Influence of the nitrogen nutritional status in the stress responses to mercury in alfalfa (<i>Medicago sativa</i>)	Paul Williams Characterizing selenium concentrations and partitioning in rice: Variation within China and the global perspective	Evelina Brannvall Spatial variability of topsoil contamination by trace elements on the territories of kindergartens in Vilnius, Lithuania	Nabanita Dasgupta Schubert The phytoextraction of copper by <i>Aldama dentata</i> : Plant biometrics and metal stress
12:40-13:00	Ana Paulina Avila Forcada Mercury pollution from mining waste disposal sites in Zacatecas	Majeti Prasad Acceleration of oxidative stress in Cd-treated sorghum seedlings exposed to phosphorus	Florian Wittslock Estimation of Ca and Zn uptake in barley using soil characteristics and differential Kd values. (Poster presentation)	Paula Madejón Amendments to enhance phytoremediation: Single or repetitive applications in time?

13:00-14:00	Lunch
14:00-14:20	Poster Session

Afternoon, Tuesday 14 July 2009

	Room 1	Room 2	Room 3	Room 4
	Symposium 1	Symposium 5	Technical Session 2	Technical Session 1
	Chairs: Pablo Higuera and Rocío Millán	Chair: Enzo Lombi	Chairs: Giancarlo Renella, Tatiana Zotina, Maria E. Montero	Chairs: Rufus Chaney, Nabanita Dasgupta, Paula Madejon, Alicia Melgoza
14:20-14:40	Pablo Higuera Mercury presence in the atmosphere of a town devoted to gold production: El Callao (Venezuela)	Maribel Ramírez Martínez Influence of lanthanum on the length of stems in <i>Tulipa gesneriana</i>	Maria E. Montero Radionuclides present in surface water at the San Marcos Range, Chihuahua, Mexico	Pavel Tlustos Remediation ability of trees and hyperaccumulators for heavy metals at pot and field growing conditions
14:40-15:00	Pablo Higuera Gaseous mercury and its species in the surroundings of a decommissioned mercury mine	Miroslav Puncochar Possibilities of contaminated flax utilization for energetic purposes	Tatiana Zotina Compartmentalization of stable and radioactive isotopes of metals in the biomass of macrophytes of the Yenisei River	Miriam Hernández Zamora Capability of <i>asphodelus fistulosus L.</i> for accumulation of lead from mine tailings
15:00-15:20	Gilberto Hernández Silva Total mercury content in pre-hispanic skeletons, present mining workers and different land use at south of Sierra Gorda, Queretaro, Mexico	Enzo Lombi Arsenic and nutrients in rice grains	Konstantin Choumilin Authigenic uranium in the sediments in the La Paz Bay and La Paz Basin, South-western Gulf of California	Julie Katrine Jensen The potential of willow for remediation of heavy metal polluted calcareous urban soils
15:20-15:40	Angel Faz Heavy metal pollution by mining activities in Rayo Rojo Mining District Apolobamba (Bolivia)	Estevao Vicari Mellis Sugar-cane response to micronutrients (Didn't attend)	Evgueni Shumilin Lanthanides in the some organisms from two hydrothermal fields of the Northeast Pacific Ocean: Guaymas Basin (Gulf of California) and 9°50'N on the East Pacific Rise	Asmaveth Solís Ibarra Evaluation of <i>Acacia farnesiana</i> and <i>Asphodelus fistulosus</i> capability for their potential use in phytoremediation of Cd polluted soil
15:40-16:00	Summary and Remarks: Pablo Higuera and Rocío Millán	Jorge Alejandro Torres Growth, minerals and heavy metals absorption in <i>Lilium sp.</i>	Jean Philippe Bedell Evaluation of the desorption predictability measures of Zn, Cu and Cd for rye grass in several sediments	Rufus Chaney Phytoextraction and phytomining of Ni using hyperaccumulator species

16:00-16:20	Coffee Break & Poster Session
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Afternoon Tuesday 14 July 2009

	Room 1	Room 2	Room 3	Room 4
	Symposium 4	Technical Session 3	Technical Session 2	Technical Session 1
	Chair: Walter Wenzel Pavel Tlustos and Markus Puschenreiter	Chairs: Alan Baker, Gabriela Moeller and Ma. Eugenia García	Chairs: Giancarlo Renella , Tatiana Zotina, Maria E. Montero	Chairs: Rufus Chaney, Nabanita Dasgupta, Paula Madejon, Alicia Melgoza
16:20-16:40	Matthieu Bravin Root-mediated alteration of copper lability in wheat rhizosphere	Vianey Ruiz Lopez Removal of Cd and Zn in biological systems that simulate a constructed wetland	Tepwitoon Thongsri Heavy Metal Contamination of the Bang Pakong River, Thailand	Akira Takeda Aging effect on caesium phytoavailability in an Allophanic Andisol
16:40-17:00	Solvita Ore Assessment and modeling of copper toxicity in soil-less culture using a bioluminescent <i>nitrosomonas europaea</i> strain	Maria Eugenia García A comparative study of phytofiltration and bioremediation for metal removal from water in a mining area of Poopó Lake basin, Bolivia	Mauricio Antonio Ramos Osuna Cadmium levels in the edible portion of skipjack tuna <i>Katsuwonus pelamis</i> from the eastern Pacific Ocean: preliminary results	Majeti Prasad Phyto-products from <i>prosopis juliflora</i> (Velvet mesquite) applied in phytoremediation
17:00-17:20	Eduardo Moreno Jiménez Impact of root mineralization on As availability in soils	Ma. Catalina Alfaro De La Torre Evaluation of a constructed wetland of subsurface flow to remove toxic elements from solution	Jennifer de Livera Cadmium solubility in paddy soils: effects of variable redox conditions and competitive ions	Rainer Rees Boron interactions with poplars in deficient and contaminated soils
17:20-17:40	Fien Degryse Reported Michaelis Constants (KM) for Cd and Zn uptake by plants reflect diffusion limitations around roots, not the affinity of metal transporters	Laura Marang Determination of probabilistic Kd values for freshwater combining speciation code and Bayesian statistics	Summary and Remarks: Giancarlo Renella, Tatiana Zotina and Maria E. Montero	Summary and Remarks: Rufus Chaney, Paula Madejon, Nabanita Dasgupta, and Alicia Melgoza
17:40-18:00	Monica Marchetti Plant trace element uptake as affected by microorganisms: screening for the best players	Summary and Remarks: Gabriela Moeller, Maria Eugenia García and Alan Baker		

Morning, Wednesday 15 July 2009

	Room 1	Room 2	Room 4
	Technical Session 6	Technical Session 9	Technical Session 5
	Chairs: Margarita Gutierrez, Josefina Rodriguez, Lena Q. Ma	Chairs: Carlos Green , Robert Garrett	Chairs: Michel Mench and Giancarlo Renella
9:00-9:20	<p>Barry Rosen</p> <p>Biogeochemical cycling of arsenic by a Yellowstone thermoacidophilic eukaryotic alga</p>	<p>Carlos Green Ruiz</p> <p>Cu and Pb geosorption by Ca-montmorillonite from aqueous solutions: Effect of salinity</p>	<p>Amir Fotovat</p> <p>Assessment of Ni and Zn contamination in polluted soil by kriging method in North East of Iran (Mashhad)</p> <p>(Poster presentation)</p>
9:20-9:40	<p>Lucy Mar Camacho</p> <p>Arsenic and fluoride removal from drinking water by adsorption on natural zeolite</p>	<p>Robert Garrett</p> <p>Macro-relationships between regional-scale field pea (<i>Pisum sativum</i>) chemistry and soil-type and eco-classification in western Canada</p>	<p>Giancarlo Renella</p> <p>Microbial community composition in trace element contaminated soils subjected to phytostabilization</p>
9:40-10:00	<p>Hiram Castillo</p> <p>Study of localization and chemical forms of arsenic in three species of the <i>Parkinsonia</i> plant genus using X-ray spectromicroscopy</p>	<p>Moritz Bigalke</p> <p>Isotopic fractionation of copper during soil genesis</p>	<p>Gary Pierzynski</p> <p>Influence of compost on microbial function and community structure when applied to heavy metal mine wastes</p>
10:00-11:00	<p>Keynote Speaker: Erik Smolders</p> <p>Importance of Regulations, Critical Loads of Metals and Other Trace Elements to Terrestrial Environments</p>		
11:00-11:20	<p>Coffee Break & Poster Session</p>		

Morning, Wednesday 15 July 2009

	Room 1	Room 2	Room 3	Room 4
	Symposium 4	Technical Session 3	Technical Session 6	Technical Session 5
	Chairs: Walter Wenzel Pavel Tlustos and Markus Puschenreiter	Chairs: Lydia Hernández, Alejandra Martín D.	Chairs: Margarita Gutierrez	Chair: Michel Mench and Giancarlo Renella
11:20-11:40	<p>Helle Marcussen</p> <p>Speciation analysis of phytosiderophores released from the roots of barley genotypes</p>	<p>Teresa Moorillon</p> <p>Biological treatment to reduce heavy metal content in wastewater by a packed column reactor</p>	<p>Ruth Alfaro</p> <p>Arsenic and fluoride in thermal springs at the Eastern zone of Cuitzeo basin (Araró), Michoacán, México</p> <p>Poster presentation</p>	<p>Tiina Maileena Nieminen</p> <p>Household biocompost and native woody plants in remediation of Cu-Ni polluted forest soil</p>
11:40-12:00	<p>Olga Popovic</p> <p>Bioavailability of trace metals in contaminated soils of western Balkan</p>	<p>Lydia Hernández Rivera</p> <p>Electrocoagulation with possible magnetic removal of water pollutants</p>	<p>Cristo Omar Puente Valenzuela</p> <p>Behavior of alfalfa (<i>Medicago Sativa</i>) cultivated in an organic soil with three different doses of arsenic</p>	<p>Rafael Clemente</p> <p>Evaluation of a composted and uncomposted solid olive mill waste and their water soluble extracts for remediation of a heavy metal polluted soil</p>
12:00-12:20	<p>Jakob Santner</p> <p>Ectomycorrhization decreases the ratio of Cd/Zn translocation from roots to leaves of <i>Populus tremula</i> plants</p>	<p>Amir Fotovat</p> <p>Sand-soil-organic matter filter column for removal of heavy metals from industrial waste water</p> <p>Poster presentation</p>	<p>Catalina Alfaro</p> <p>Determination of total arsenic and fluoride in drinking water in San Luis Potosí State, México</p>	<p>Paramsothy Jeyakumar</p> <p>Comparative tolerance of poplar and microorganisms to copper and zinc toxicity in a biosolids-amended soil</p>
12:20-12:40	<p>Markus Puschenreiter</p> <p>Repeated extraction of Cd from contaminated soils – implications for phytoremediation</p>	<p>Ismael Acosta</p> <p>Removal of chromium (VI) in solution for shell of shrimp</p> <p>Poster presentation</p>	<p>Luisa Terrazas</p> <p>Arsenic removal by ultrafiltration composite membrane</p>	<p>Engracia Madejón</p> <p>Arbuscular mycorrhizal fungi (AMF) and biosolids to enhance the growth of Australian native grasses on sulphidic mine tailings</p>
12:40-13:00	<p>Summary and Remarks: Walter Wenzel Pavel Tlustos and Markus Puschenreiter</p>	<p>Onofre Monge Amaya</p> <p>Copper biosorption in an aerobic bioreactor packed with zeolite</p>	<p>Lourdes Villalba</p> <p>Arsenic found in water supplied to rural communities of the Rosales county, Chihuahua</p>	<p>Wolfgang Friesl Hanl</p> <p>Application of soil amendments on seven smelting and mining affected european soils for immobilization of heavy metals</p>

13:00-14:00	Lunch
14:00-14:20	Poster Session

Afternoon, Wednesday 15 July 2009

	Room 1	Room 2	Room 3	Room 4
	Symposium 3	Symposium 7	Technical Session 6	Technical Session 5
	Chairs: Danny D. Reible, Domy Adriano	Chairs: Jorge Gardea T. and J.R. Peralta Videá, Felix San Román	Chair: Margarita Gutierrez, and Gijs Du Laing	Chair: Michel Mench and Giancarlo Renella
14:20-14:40	Danny D. Reible Current practices for the assessment and remediation of contaminated sediments	Víctor Cerdá Trace determination by means of a combined use of flow techniques with chromatographies	Jie Qin Arsenic methylation by <i>cyanidoschyzon merolae</i> from Yellowstone Park	Alicia Melgoza o Luis Roberto gutierrez Sunflower (<i>Helianthus annuus L.</i>) germination response to metal concentrations
14:40-15:00	Kirk Scheckel Synchrotron analysis of metal immobilization in sediments	Ganga M. Hettiarachchi Subsurface transformations of trace elements in reduced multi metal-rich geo-materials using noninvasive x-ray spectroscopy techniques	Magda Mateo As(III) oxidation and scorodite precipitation in bioleaching solutions at 30°C and 70°C Didn't attend)	Jelle Mertens Copper tolerance does not affect the sensitivity of nitrifying communities to additional stressors
15:00-15:20	Caroline Vansimaey Ripening of contaminated sediments: effect on organic matter-bound and iron oxides-bound metals	J. Viridiana García Meza Evaluation of the biooxidation of reduced sulfur forms generated at the pyrite (FeS ₂)- <i>Acidithiobacillus thiooxidans</i> interface	María Aurora Armienta Influence of mining wastes on the enrichment on arsenic and heavy metals in a Mexican river	Cecilia Valles Aragón Chemical stabilization of polluted soils with heavy metals
15:20-15:40	Y. Meriah Arias Thode Bacterial and benthic community response to apatite, acetate, and chitin amendments in marine sediment	Luz Leal Quezada Analytical methodologies for arsenic determination exploiting flow injection-based approaches	Josefina Rodríguez Rosales Overexploitation effects of Valle of Guadiana's aquifer	Nazanin Roohani Zinc nutrition in Iranian population
15:40-16:00	Yongseok Hong Experimental and mathematical investigations of metals release upon sediment resuspension	Magda Mateo Selective determination of As ⁺³ in bioleaching solutions by differential pulse polarography Didn't attend)	Gijs Du Laing Presence and mobility of arsenic in a wide region around a gold mine near the city of Oruro on the Bolivian altiplano	Summary and Remarks: Michel Mench and Giancarlo Renella

16:00-16:20	Coffee Break & Poster Session
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Afternoon, Wednesday 15 July 2009

	Room 1	Room 2	Room 3	Room 4
	Symposium 3	Symposium 7	Technical Session 6	Technical Session 8
	Chair: Danny D. Reible, Domy Adriano	Chairs: Jorge Gardea T., J.R. Peralta Videa	Chair: Margarita Gutierrez	Chair: Eric Van Genderen
16:20-16:40	Joerg Rinklebe Exploiting a new technique to study pollution control processes in flooded soils and sediments – a better understanding towards an adequate remediation	Azam Ghorbani Measurement uncertainty of Se and Cd determination in blood sample by graphite furnace atomic absorption spectroscopy Didn't attend)	Margarita Eugenia Gutiérrez Ruiz Geochemical behavior of arsenic and heavy metals in semiarid contaminated soils	Steve McGrath Utilizing ecotoxicology data from the UK long-term sludge trials for environmental protection
16:40-17:00	Danny D. Reible Potential toxicity of amendments used for treating contaminated sediments	Victor Cerdá Automatic MSFIA method for water monitoring in an energy co-generation system from a MW incinerator	J. Viridiana García Meza Acidophilic microorganisms from a mine-heap: could they live and operate under high As concentration?	Adam Ryan Evaluation and refinement of the freshwater biotic ligand model for lead
17:00-17:20	Anna Sophia Knox Active caps for the remediation of mixtures of contaminants and resistance to erosion Didn't attend)	Corina Solis Rosales Analysis of trace metals in environmental samples by PIXE. Applications to the Mezquital Valley, Mexico	Gabriela Sánchez Viveros Toxicity and accumulation of arsenic in the <i>Azolla-Anabaena</i> symbiosis	Amanda Black Changes in soil solution speciation and wheat uptake of Ni in a sandy soil treated with biosolids and metal salts
17:20-17:40	Summary and Remarks: Danny D. Reible and Domy Adriano	Katie L. Moore NanoSIMS analysis of trace elements in cereal grain	Summary and Remarks: Margarita Gutierrez, Gijs Du Laing, Josefina Rodriguez, Lucy Mar Camacho, Maria Aurora Armienta, Luly Ballinas, Jie Qin, J. Viridiana, Lourdes Villalba	Stefan Ruyters Substrate addition enhances the adaptation rate of nitrifying and denitrifying communities in zinc contaminated soils
17:40-18:00		Summary and Remarks: J. R. Peralta, Jorge Gardea		Summary and Remarks: Eric Van Genderen

Morning, Thursday 16 July 2009

	Room 1	Room 2	Room 3	Room 4
	Symposium 6	Symposium 2	Technical Session 2	Technical Session 9
	Chair: Steve McGrath Maria Armenta, Martha Litter, Fangjie Zhao	Chairs: Rainer Schulin and Magdi Selim	Chair: Alex Iitzkandar and Eduardo Herrera	Chair: Carlos Green and Robert Garrett
9:00-9:20	Doris Vetterlein Arsenite efflux by plant roots comparison of hypropinc and soil grow plants	Liesbeth Van Laer The soil Fe/C ratio explains the mobilization of Zn upon waterlogging	Eduardo Herrera Isotopic content of particulate matter in two campaigns in Chihuahua Valley	Guillaume Echevarria Assessment of chromate availability by isotopic exchange kinetics in tropical ultramafic Ferralsol
9:20-9:40	Marta Litter Low-cost technologies based on heterogeneous photocatalysis and zerovalent iron for arsenic removal in the Chacopampean Plain, Argentina	Suzanne Beauchemin Mobilization and attenuation of antimony at an inactive gold mine	Massimo Pizzol Impact pathway approach on lead (Pb) emissions from a municipal waste combustion plant	Guillaume Echevarria Control of nickel availability by pedogenesis and transfer to hyperaccumulators in an ultramafic toposequence (Albania)
9:40-10:00	Mario Alberto Olmos Márquez Use of <i>eleocharis macrostachya</i> in constructed wetlands for arsenic removal	Veronika Gyuricza Do arbuscular mycorrhizal fungi transport radiocesium between plants?	Alfredo Campos Trujillo Source category identification of trace elements in PM10 from Chihuahua City (Northern Mexico)	Guillaume Echevarria Uptake and hyperaccumulation of Ni by ultramafic flora as a function of soil type and Ni availability (Barro Alto, GO, Brazil)
10:00-11:00	Keynote Speaker: FangJie Zhao Arsenic in Food and Water: a Global Problem			
11:00-11:20	Coffee Break & Poster Session			

Morning, Thursday 16 July 2009

	Room 1	Room 2	Room 3	Room 4
	Symposium 6	Symposium 2	Technical Session 4	Technical Session 7
	<p>Chair: Steve McGrath Maria Armenta, Martha Litter, Fangjie Zhao</p>	<p>Chairs: Rainer Schulin and Magdi Selim</p>	<p>Chairs: Gary Pierzynski, D. Chidambaram, Peter Engelund Holm</p>	<p>Chair: Victor Cerdá, André Rosa, Jose Peralta Videá</p>
11:20-11:40	<p>Lena Q. Ma.</p> <p>Field-scale phytoremediation of arsenic-contaminated groundwater using Chinese brake fern (<i>Pteris vittata</i>)</p>	<p>Jean Martins</p> <p>Role of bacteria transport in the accelerated transfer of heavy metals in natural and urban soils</p>	<p>Gary Pierzynski</p> <p>Influence of P on the speciation of Pb and Zn in a Pb/Zn smelter-contaminated soil</p>	<p>André Rosa</p> <p>Development of a new analytical approach based in ultrafiltration system for in situ characterization of the interaction between metallic species and organic matter in aquatic systems</p>
11:40-12:00	<p>Jurate Kumpiene</p> <p>X-Ray spectroscopic analyses of As contaminated mining spoils 10 years after chemical stabilization</p>	<p>Lixia Liao</p> <p>Competitive sorption of nickel and cadmium in soils</p>	<p>Grega E. Voglar</p> <p>Stabilization / Solidification of metal contaminated soil with cement</p>	<p>Jan Groenberg</p> <p>Are we able to predict trace metal binding to DOM? Validation and uncertainty analysis of the NICA-Donnan model</p>
12:00-12:20	<p>Shaw-Wei Su</p> <p>Food safety of root and vegetable crops harvested from high As-contaminated soils in Guandu Plain, Taipei, Taiwan</p>	<p>Majid Afyuni</p> <p>Effect of temporal variability in soil hydraulic properties on solute transport modeling</p> <p>Didn't attend</p>	<p>Cristina Souza Freire Nordi</p> <p>Algal extracellular polysaccharides immobilized in nanostructured thin films used for heavy metal removal from aqueous solutions</p>	<p>Douglas Beak</p> <p>Cobalt distribution and speciation in soils exposed to altered redox conditions through submergence</p>
12:20-12:40	<p>Paul Williams</p> <p>Arsenic uptake by and speciation in macrophytes</p>	<p>Summary and Remarks: Rainer Schulin and Magdi Selim</p>	<p>Felix Roman Velazquez</p> <p>New nanocomposites to remove heavy metals in aqueous solutions</p>	<p>Arturo Aguirre Gomez</p> <p>A voltammetric method for determining free metal activities and the diffusion/kinetic effects on the lability of Cd, Cu, Pb and Zn complexes in aqueous solutions</p>
12:40-13:00	<p>Nadia Waegeneers</p> <p>Intake of lead through the consumption of home-produced eggs</p>		<p>Dev Chidambaram</p> <p>Palladium (0) nanoparticle formation by <i>clostridium sp.</i> BC1 provides an effective biocatalyst for hexavalent chromium remediation</p>	<p>Jessica Adelman</p> <p>Change in oxidation rate of stibnite as affected by the addition of varying amounts of pyrite in a flow-through system</p>

13:00-14:00	Lunch
14:00-14:20	Poster Session

Afternoon, Thursday 16 July 2009

	Room 1	Room 2	Room 3	Room 4
	Symposium 6	Symposium 8	Technical Session 4	Technical Session 7
	Chair: Steve McGrath Maria Armienta, Martha Litter, Fangjie Zhao	Chair: Alan Baker, Jaco Vangronsveld, Edmundo Castellanos	Chairs: Gary Pierzynski, D. Chidambaram, Peter Engelund Holm	Chair: Victor Cerdá, André Rosa, Jose Peralta Videá
14:20-14:40	Elke Suess XAS-based characterization of thioarsenates and their transformation to thioarsenites in acidic synthetic solutions	Nicholas W. Lepp Woodland development on contaminated soils in N.W. England –benefits and risks	Irena Twardowska Potential for sustainable use of biowaste in non-point applications	Fernando Maya Alejandro Implementation of in-line pre- and post-column sample treatments in Multi- Syringe Chromatography and their applicability to the determination of trace pollutants in environmental samples
14:40-15:00	Mauricio Ormachea Muñoz Arsenic in shallow wells around Poopó Lake in the Bolivian Altiplano	Michel Mench Phytoremediation of Cu-contaminated soils at a timber impregnation site	Peter Engelund Holm Comparison of EDTA, NTA and soluble humic substances as washing agents for Cd and Cu polluted soil	Wolfgang Wilcke Stable isotope ratios of Cu and Zn to distinguish anthropogenic from native Cu and Zn in soil
15:00-15:20	Masafumi Yoshinaga Biotransformation of methylarsenicals at a Florida golf course: Role of soil bacteria and abiotic factors	Alan Baker Phytostabilization of saline and arsenic contaminated gold mine tailings using native grass species redgrass (<i>Bothriochloa macra</i> (Steudel) S.T.Blake) Lazarides in the Victorian Goldfields, Australia		Antonio Serra MSFIA system for selenium determination using a C18 membrane disk
15:20-15:40	Summary and Remarks: Steve McGrath Maria Armienta, Martha Litter, Fangjie Zhao	Rainer Schulín Growing Opuntia (cactus) and Brassica species for the long- term management of selenium-contaminated soil under field conditions	Amir Fotovat Effect of copper and organic matter on copper distribution in two calcareous soils Poster presentation	Jean Martins Heavy metal sorption onto Gram-negative bacteria: a combined approach of solution chemistry, MET-EDX and EXAFS
15:40-16:00		Engracia Madejón Restoration strategies in the guadiamar area of South Spain: Evaluation of success after ten years after the aznalcollar accident	Miquel Vidal Use of Non- hazardous waste materials and clays for the in-situ remediation of a heavy-metal contaminated soil	Roberto Ramirez Leal Morphological, size and chemical characterization of inorganic particles atmospheric by scanning electron microscopy with EDS Didn't present)

16:00-16:20 Coffee Break & Cultural Event			

	Room 1	Room 2	Room 3	Room 4
		Symposium 8	Technical Session 4	Technical Session 7
		Chair: Alan Baker, Jaco Vangronsveld, Edmundo Castellanos	Chairs: Gary Pierzynski, D. Chidambaram, Peter Engelund Holm	Chair: Victor Cerdá, André Rosa, Jose Peralta Videá
16:20-16:40	Presentations of Winners of the Environmental Education Contest	Jaco Vangronsveld Metal accumulation in plants with added economical value grown on metal contaminated soils: sustainable use of these soils for bio-energy production and possibilities for phytoextraction	Metka Udovic The impact of earthworms (<i>Lumbricus terrestris</i>) on the fractionation and bioavailability of Cu in soil remediated by EDTA leaching	José Ángel Hernandez-Viezcás Application of Laser Ablation Inductively Coupled Plasma Mass Spectroscopy for Lead, Copper, and Nickel Quantification in Mesquite (<i>Prosopis</i>) Tissues
16:40-17:00		Theo Thewys Is the introduction of phytoremediation crops economically viable?	Ines Ahumada Heavy metals extractability in mollisol and inceptisol soils of central Chile amended with Biosolids	Summary and Remarks: Victor Cerdá, André Rosa, Jose Peralta Videá
17:00-17:20		Summary and Remarks: Alan Baker, Jaco Vangronsveld and Edmundo Castellanos	Summary and Remarks: Gary Pierzynski, Peter Engelund and D. Chirambaram	
17:20-18:00	Keynote Speaker: Tara Sabo Attwood The toxic effects and environmental impacts of nanoparticles			
18:00 - 19:00	Closing Ceremony			

Poster Sessions

All posters will be displayed for one day. All posters are to be placed on the boards in the poster viewing area on the entrance of the Diamante Room in the Soberano Hotel. Posters have been allocated a poster number as listed in the Poster Index. Poster authors must be present in order to attend their poster and answer questions at the nominated times.

Date	Hour	Session of Poster Presentation	Code of Poster
Tuesday 14 July 2009	11:00 - 17:00	Symposium 1	S-1, P: 1-6
		Symposium 5	S-5, P: 1-12
		Technical Session 1	TS-1, P: 1-4
		Technical Session 2	TS-2, P: 1-15
Wednesday 15 July 2009	11:00 - 17:00	Symposium 3	S-3, P: 1-1
		Symposium 4	S-4, P: 1-4
		Symposium 7	S-7, P: 1-5
		Technical Session 3	TS-3, P: 1-2
		Technical Session 5	TS-5, P: 1-6
		Technical Session 6	TS-6, P: 1-16
Thursday 16 July 2009	11:00 - 17:00	Symposium 2	S-2, P: 1-2
		Symposium 8	S-8, P: 1-5
		Technical Session 2	TS-2, P: 1-1
		Technical Session 4	TS-4, P: 1-9
		Technical Session 7	TS-7, P: 1-3
Example: S-1, P: 1-7 = Symposium 1, Number of Poster from 1 to 7			

Poster Index

Tuesday 14 July 2009

Symposium 1: Mercury: environment and health

Poster Titles	Poster Number
Preliminary study of a Mediterranean oak forest in the vicinity of the Almadén mercury mine M. Villadóniga, T. Schmid, R. Gamarra, R. Millán	S-1, P-1
Study of safe crop production under controlled conditions using a soil from Almadén mercury mine area M.J. Sierra, E. Esteban, R. Millán	S-1, P-2
Distribution of mercury and other heavy metals in the Almadenejos decommissioned mercury metallurgical precinct A. Martínez-Coronado, W. Llanos, R. Oyarzun, P. Higuera, J.M. Esbrí, E.M. García-Noguero	S-1, P-3
Evaluation of lichens as bioindicators in the Almadén mercury mining district P. Higuera, A. Crespo, J.M. Esbrí, M.A. López-Berdonces	S-1, P-4
Differences in accumulation and physiological response to mercury in white lupin, chickpea and spring wheat plants P. Zornoza, R. Millán, C. Rodríguez, P. Blanco, B. Sánchez-Pardo, E. Esteban	S-1, P-5
Mercury bioconcentration potential of Bay Bolete <i>Xerocomus badius</i> J.Falandysz, A.Wacko, A.Zakrzewska, L.Bielawski, M.Rompa, A. Sapór	S-1, P-6

Symposium 5: Trace elements in plant nutrition

Poster Titles	Poster Number
Applicability of top plant and root tissues to Cu and Ni phytotoxicity assessment: a case study of white mustard (<i>Sinapis alba</i>) Ewa Stanislawski-Glubiak, Jolanta Korzeniowska, Janusz Igras	S-5, P-1
Zinc in an Oxisol treated with sewage sludge in a long-term field experiment F. G. Macedo, L. C. Souza, W. J. Melo, G. M. P. Melo, A. C. T. P. Guedes, L. S. Torres, M. H. Ribeiro, V.P.Melo	S-5, P-2
Availability of cadmium and zinc as affected by the use of reactive phosphate rock, lime, and chicken manure on an Indonesian acid upland soil S. Rochayati, G. Du Laing, M. Verloo	S-5, P-3
Manganese status in vine leaf on calcareous soils after Mn foliar fertilization M. Herak Ćustić, D. Gluhić, M. Petek, L. Čoga, S Slunjski, B. Lacković	S-5, P-4
Ratios Between Leaf Mn Concentration and Mn Concentration in Must and Pomace of GrapeVine (<i>Vitis vinifera</i> L.) L. Čoga, S. Slunjski, M. Herak Ćustić, M. Petek, A. Biško, M. Šuste	S-5, P-5
Red Beet Iron and Manganese Content at Harvest and after Storage as Influenced by Different Fertilization M. Petek, M. Herak Ćustić, S. Slunjski, L. Čoga, N. Toth, T. Karažija, L. Leko	S-5, P-6
Root-induced alkalization of an acidic, copper-contaminated soil controls copper depletion in wheat rhizosphere M.N. Bravin, P. Hinsinger	S-5, P-7
Effects of manganese (Mn ²⁺) on efficiency of PSII in Highbush blueberry cultivars R. Millaleo, M. Reyes-Díaz, M. Alberdi, M.L. Mora	S-5, P-8

Effects of boron fertilization of winter cereals depending on application methods S.Wrobel	S-5, P-9
Effects of Organic Fertilization on Iron Content in Grapevine Leaf T. Karažija, T. Ćosić, M. Petek, S. Slunjski, I. Pavlović, T. Horvat, B. Lazarević	S-5, P-10
Can phosphorus fertilizer and arbuscular mycorrhizal fungi affect cadmium concentration in crops? Xiaopeng Gao, Fardausi Akhter, Mario Tenuta, Don Flaten, Cynthia Grant	S-5, P-11
The Fluctuation of Micronutrients Content in Oilseed Rape Plants (<i>Brassica napus</i> L.) after the Application of Sulphur Fertilisers J. Balík, D. Pavlíková, M. Kulháněk, J. Černý, P. Tlustoš, V. Nedvěd	S-5, P-12

Poster Index

Tuesday 14 July 2009

Technical Session 1: Phytoremediation of metals/metalloids: uptake, transport and transformation

Poster Titles	Poster Number
Germination of two different Grasses <i>Buchloe dactyloides</i> and <i>Cynodon dactylon</i> in contaminated soil with metals y metalloids M ^a del Rosario Delgado-Caballero, M ^a Teresa Alarcón-Herrera	TS-1, P-1
The potential of <i>Baccharis linearis</i> (R. et P.) Pers. for phytostabilization of mine tailings storage facilities (TSF) under semiarid Mediterranean climate type conditions Rosanna Ginocchio, Elena Bustamante, Yasna Silva, Luz María de la Fuente, Jaime Cuevas, Ismael Jiménez, Pedro León-Lobos	TS-1, P-2
Effects of phytoextraction on the bioavailability of heavy metals and the chemical properties of biosolids T. T. Huynh, W. S. Laidlaw, B. Singh, H. Zhang, A. J. M. Baker.	TS-1, P-3
Phytoremediation assisted by microorganisms. Characterization of fluorescent pseudomonads strains from samples of soil and roots Guillermo Carrillo Castañeda, Guillermo D. Tijerina Castro	TS-1, P-4

Poster Index

Tuesday 14 July 2009

Technical Session 2: Contamination by trace elements Air Pollution by metals and Metalloids, Soil and Water

Poster Titles	Poster Number
Cadmium and Lead contents in Some Commercial Fertilizers in Brazil E.M.Andre, L.S. de Medeiros, W. Vieira.	TS-2, P-1
Preliminary study on heavy metals' effect on the development of maize plants (<i>Zea mays</i> L), grown in soils polluted by mining activities in Taxco, Mexico. Esther Aurora Ruiz Huerta, Ma. Aurora Armenta Hernández.	TS-2, P-2
The effect of zinc and boron on residual available zinc in the soil after corn harvest André H.Rosa, Adriana P. de Oliveira), Leonardo Fernandes Fraceto	TS-2, P-3
Geospatial Evaluation of Trace Elements Pollutants Derived from Asarco smelting plant in Cd. Juarez, Chihuahua, Mexico.	TS-2, P-4

Fermin Esteban Porras Hernandez, Maria Teresa Alarcón Herrera, Alfredo Granados Olivas	
Mercury in Soil and in Alfalfa as Affected by Metal Contamination and Sewage Sludge G.M.P. Melo, W.J. Melo, L.M.A. Bertipaglia, V.P. Melo, V.S. Ribeirinho, V.E. Soares.	TS-2, P-5
Trace Elements Deposition in Radish Plants Grown in Salt-Affected and Cd-Contaminated Organic Soil G. Ondrasek, D. Romic, Z. Rengel.	TS-2, P-6
Cadmium sorption in Agricultural Soils in the Araucania Region of Chile J. Mejías, J. Peralta, S. González, F. Tapia, H. Pauchard, J. Roa, C. Borquez, V. Peña.	TS-2, P-7
The use of energy crops for lands contaminated with heavy metals Jolanta Korzeniowska, Ewa Stanislawska-Glubiak, Janusz Igras	TS-2, P-8
Lead Accumulation in Eucalyptus Plants Cropped in Soil Contaminated with Lead L.M.A. Bertipaglia, W.J. Melo, G.M.P. Melo, V.P. Melo, L. Nalon, V.E. Soares	TS-2, P-9
Zinc Status in Paddy Soils and Rice in Central and Southwest Iran for Human Health M. Pirzadeh, M. Afyuni, A. H. Khoshgoftarmanesh, R. Schulín	TS-2, P-10
Identifying potential contaminant sources using sediment geochemical data sets Melida Gutierrez, Enriquen Carreon, Hector Rubio Arias, M. Teresa Alarcón Herrera.	TS-2, P-11
Sr and Se in soil of East Siberia and manifestation of Uron disease V.V.Ermakov	TS-2, P-12
Arsenic and Mercury in Agricultural and Natural Gas Rich Environment in Croatia Z. Zgorelec, F. Basic, I. Kisic, M. Mesic, K. Sajko, I. Vukovic and A. Jurisic	TS-2, P-13
Molybdenum toxicity to soil micro-organisms Jurgen Buekers and Erik Smolders	TS-2, P-14
Estimation of Cd and Zn uptake in Barley using soil characteristics and differential K_d values F. Wittstock, W. Friesl-Hanl, M. Puschenreiter, C. Beyer, W. W. Wenzel	TS-2, P-15

Poster Index

Wednesday 15 July 2009

Symposium 3: Fate and transport of metals in contaminated sediments - new approaches in remediation

Poster Titles	Poster Number
Stochastic Modeling for Transport and Fate of Metals in Subtropical River Sediments M. J. Santos Yabe, M. Z. Corazza, S. N. Gimenez, T. Abrão	S-3, P-1

Symposium 4: Bioavailability in the plant-soil system (rhizosphere)

Poster Titles	Poster Number
Screening wheat genotypes for zinc and iron efficiency using stress tolerance index (STI) under field condition Sadrarhami, A., A.H. Khoshgoftarmanesh, R. Schulin	S-4, P-1
Influence of soil organic status on the dynamics and impact of copper on microbial communities in a vineyard soil Aline Navel, Jean M.F. Martins, David P.H. Lejon, Isabelle Lamy, Lionel Ranjard, Jean Lévêque, Lorenzo Spadini	S-4, P-2
Development and evaluation of micro push-pull tests to investigate rhizosphere processes K. Knecht, B. Nowack, M.H. Schroth, R. Schulin	S-4, P-3
Impacts of barley root exudates and rhizosphere soil conditions on copper bioavailability as determined by whole-cell bacterial biosensors complemented by chemical analysis Kristian K. Brandt, Ole Nybroe, Soren Husted, Thomas H. Hansen, Peter E. Holm	S-4, P-4

Poster Index

Wednesday 15 July 2009

Symposium 7: Advanced analytical techniques in metal & metalloid research

Poster Titles	Poster Number
Evaluation of microwave-assisted enzymatic extraction procedure for arsenic speciation in rice and fish tissues J.L. Guzmán Mar, L. Hinojosa Reyes, A. Hernández-Ramírez, J.M.Peralta-Hernández, G.M.M. Rahman, H. M. Skip Kingston.	S-7, P-1
Development and validation of an analytical method for the determination of lead isotopic composition using ICP-QMS María Teresa Rodríguez Salazar, Ofelia Morton Bermea, Elizabeth Hernández Álvarez, María Elena García, María Teresa Ortuño.	S-7, P-2
A comparative study of activated charcoal and raw charcoal of <i>Melocanna baccifera</i> Roxburgh for the removal of Lead(II) from aqueous solutions H. Lalhrualtuanga, M.N.V. Prasad.	S-7, P-3

Employment of Factorial Design for Cd, Cu, Ni and Pb determination in Biodiesel by Graphite Furnace Atomic Absorption Spectrometry Fabiana A. Lobo, Danielle Goveia, Edenir R. Pereira-Filhoc, André H. Rosab, Adriana P. de Oliveirad, Leonardo Fernandes Fraceto	S-7, P-4
Selective determination of As ⁺³ in bioleaching solutions by differential pulse polarography Mateo M., Paipa C. Sanhueza A.	S-7, P-5

Technical Session 3:

Advances in the use of wetlands and water treatment

Poster Titles	Poster Number
Sand-soil-organic Matter Filter Column for Removal of Heavy Metals from Industrial Waste Water M. Mohammadi, A. Fotovat. G. Haghnia	TS-3, P-1
Removal of chromium (VI) in solution for shell of shrimp Hernandez Arvisu N., Martinez-Perez R., Cardenas, J.F., Acosta I	TS-3, P-2

Poster Index

Wednesday 15 July 2009

Technical Session 5:

Environmental Sustainability

Poster Titles	Poster Number
Using waste tire extracts as zinc source for hydroponic grown tomato A. H. Khoshgoftarmanesh, H. Shariatmadari, S. Taheri, R. L. Chaney	TS-5, P-1
Biological indicators of phytostabilization of mine tailings storage facilities under semiarid Mediterranean climate type conditions. Claudia Santibáñez, Elena Bustamante, Yasna Silva, Rosanna Ginocchio	TS-5, P-2
Barium sequential extraction from an Oxisol treated with sewage sludge in a long-term field experiment L.C.Souza, W.J.Melo, F. G.Macedo, L. R.Oliveira, G.M. P.Melo, A.C.T.P.Guedes, L.S.Torres, V.P.Melo	TS-5, P-3
Characterization of a stormwater basin: a case study of plants identification and their trace elements uptake (Zn, Cd and Cu) M.Saulais, J.P.Bedell, D.Lemoine, R.Saleri, H.Lequay, G.Blake, C.Delolme	TS-5, P-4
Baselines for trace elements in surface soils of Mexico Margarita Gutiérrez-Ruiz, Agueda Ceniceros-Gómez, Francisco Romero, Laura Luna-González, Luis Miguel Morales-Manilla, Jorge López-Blanco, César Navarro, Hedgar Hernández, Gerardo Martínez-Jardines.	TS-5, P-5
Assessment of Ni and Zn Contamination in Polluted Soil by Kriging Method in Northeast Iran (Mashhad) M. Shirani , A. Fotovat, H. Khademi,G. H. Haghnia: A. Lakzian	TS-5, P-6

Technical Session 6: Arsenic and fluoride, water contamination and remediation processes

Poster Titles	Poster Number
Surface reactivity of As (V), Zn (II) and Pb (II) on two synthetic analogs of a biogenic Mn oxide Salazar-Camacho Carlos and Villalobos Mario	TS-6, P-1
The effect of Vetiver (<i>Chrysopogon zizanioides</i> L.) in the removal of fluoride and other contaminants from water for human consumption in the village of Guarataro, Yaracuy State, Venezuela Ruiz, C., Luque O. y Alarcón, M. T.	TS-6, P-2
Assessing of uptake of anthropogenic arsenic by Medicago Sativa Rafael Zuñiga TarangoCristo O. Puente ValenzuelaGonzalo G. Garcia VargasJesus J. Duarte Sustaita	TS-6, P-3
As extraction from mining wastes contaminated soils with NaHCO ₃ García-Payne D.G., Villalobos M., Ceniceros-Gómez A.E., Gutiérrez-Ruiz M.E.	TS-6, P-4
Assessment of the distribution and lixiviation of arsenic in soils near tailings piles García-Arreola, M.E., Flores-Vélez, L. Ma., Soriano-Pérez, S.	TS-6, P-5
Adsorption of arsenic (III) by iron oxides in drinking water	TS-6, P-6

Miriam Z. López Paraguay, María Teresa Alarcón Herrera, José Apolinar Cortés	
Arsenic impacts trace mineral nutrition and yield in Bangladesh high yielding rice cultivars S. Islam, MR Islam, P.N. Williams, M. Jahiruddin, Y.G. Zhu	TS-6, P-7
Effect of water management on arsenic accumulation in rice: results from a pot experiment R.Y. Li, S.P. McGrath, F.J. Zhao	TS-6, P-8
Sorption of Fluoride by Modified Zeolites R.S. Bowman, K. Sasaki, and T. Urata	TS-6, P-9
Disposal of Arsenic filter sludge and possible contamination of soil and plant S.M. Imamul Huq, Lutfun Nesa, T.A. Chowdhury and J.C. Joardar	TS-6, P-10
Arsenic uptake and metabolism in plants: mechanisms and mitigation measures to reduce arsenic transfer to the food chain F.J. Zhao and S.P. McGrath	TS-6, P-11
Spatial Prediction of Arsenic Concentration in Drinking Water J. Ghadermazi, Gh. Sayyad, J. Mohammadi, F. Ahmadi, R. Schulin	TS-6, P-12
The IBEROARSEN Network Marta I. Litter, María A. Armienta, Jochen Bundschuh	TS-6, P-13
Risk of arsenic accumulation in plant shoots from mining areas Bergqvist C., Lux A., Vaculík M., Lalinská B., Šottník P., Jurkovic L., Greger M.	TS-6, P-14
Arsenic and fluoride in thermal springs at the Eastern zone of Cuitzeo basin (Araró), Michoacán, México. Alfaro R., Vázquez M., Cortés R., Segovia N., Patiño M., Márquez L.	TS-6, P-15
Fluorides in the phreatic aquifer of the loessic plain from the south of Córdoba Province, Argentina Blarasin M., A. Cabrera, E. Matteoda y J. Felizzia	TS-6, P-16

Poster Index

Thursday 16 July 2009

Symposium 2: Transport/dynamics of trace elements in the root zone.

Poster Titles	Poster Number
Evaluating Non-Equilibrium Transport of Arsenite in Soils. Hua Zhang, H. M. Selim	S-2, P-1
Mechanisms of metal sequestration in the metal tolerant ectomycorrhizal fungus <i>Suillus</i> sp K.Adriaensen, J.V.Colpaert, J-L.Hazeman, T.Bruns, M.Marcus, G.Sarret, Jaco Vangrosveld.	S-2, P-2

Symposium 8: Arsenic in the environment

Poster Titles	Poster Number
Heavy metals accumulation curves in agricultural soils under continuous residual watering and a projection of its impact on health L. B.Reyes-Sánchez, René Miranda Ruvalcaba, I. Salazar Quintana, J. Canales	S-8, P-1
Wheat grain concentration of zinc and its relationship with soil and climate parameters in Mediterranean soils of Central Iran Mahin Karami, Majid Afyuni, Amir Hossin Khoshgofarmanesh, Andreas Papritz, Rainer Schulin	S-8, P-2
SUMATECS: Sustainable management of trace element contaminated soils – Development of a decision tool system and its evaluation for practical application M. Puschenreiter, M. Mench, K. Adriaensen, J. Kumpiene, I Müller, A. Cundy, W. Friesl-Hanl, G. Renella, P. Tlustos, V. Bert, B. Marschner	S-8, P-3
The Specific UV-Absorbance of Dissolved Organic Matter (DOM) Predicts the 5-fold Variation of the Copper Mobilisation by DOM in an Agricultural Soil Horizon Fien Amery, Fien Degryse, Inne De Troyer, Karlien Cheyens, Jan Mertens, Erik Smolders	S-8, P-4
Efficacy of organic and inorganic wastes as copper tailings amendments for phytostabilization of tailings storage facilities under semiarid Mediterranean climate type conditions. Rosanna Ginocchio, Elena Bustamante, Yasna Silva, Luz María de la Fuente, Jaime Cuevas, Ismael Jiménez, Sergio Silva, Pedro León-Lobos.	S-8, P-5

Technical Session 2: Sustainable management of metal & metalloid polluted, marginal soils

Poster Titles	Poster Number
Estimation Emission of Biogenic Origin of Chihuahua Capital City Luisa Yolanda Quiñones Montenegro	TS-2, P-1

Poster Index

Thursday 16 July 2009

Technical Session 4: Advances in remediation technologies for trace elements contaminated sites

Poster Titles	Poster Number
Effect of mineral fertilization and soil amendments on heavy metals and metalloid content in drained Stagnosols I. Vukovic, Z. Zgorelec, M. Mesic, I. Kisic, F. Basic, K. Sajko, A. Jurisic	TS-4, P-1
Assessing a Threshold for Cadmium Level in Agricultural Soils in the Araucania Region of Chile J. Mejías, J. Peralta, S. González, F. Tapia, H. Pauchard, J. Roa, C. Borquez, V. Peña	TS-4, P-2
Remediation of Cu contaminated soil using chelant and electrochemical advanced oxidation process (EAOP) M. Pocięcha, H. Sircelj, D. Lestan	TS-4, P-3
Bioremediation of hydrocarbons in soil and its impact on Cr mobility Amezcuá Allieri, M. A., Rodríguez-Vázquez, R. & Lead, J.R.	TS-4, P-4
Biogeochemistry in the tin-tungsten mining areas (North of Portugal) P.J.C. Favas	TS-4, P-5
Strychnos potatorum seed powder adsorbs Cd and Pb from aqueous solutions – significance of pH and contact time K.Jayaram, and M.N.V.Prasad	TS-4, P-6
Buckwheat crops as an indicator of Zinc Contaminated soil remediation S. Wrobel, K. Nowak-Winiarska	TS-4, P-7
Lead(II) resistance in Cupriavidus metallidurans CH34: interplay between plasmid and chromosomally-located functions Safiyh Taghavi, Celine Lesaulnier, Sebastien Monchy, Max Mergeay, Daniel van der Lelie	TS-4, P-8
Effect of copper and organic matter on copper distribution in two calcareous soils. Azadeh Esmaily, Amir Fotovat, Najaf ali Krimian, Gholam Hossien Haghnia	TS-4, P-9

Poster Index

Thursday 16 July 2009

Technical Session 7: New Analytical Techniques to study the fate of trace elements in the environment

Poster Titles	Poster Number
Kinetics of the elementary sulfur (S ⁰) biooxidation during the adaptation process of Acidithiobacillus thiooxidans to oxidized pyrite surfaces D.M. González, R.H. Lara, R. Cruz, J.V. García-Meza	TS-7, P-1

<p>Critical comparison of dynamic fractionation assays of trace elements in solid samples using sequential injection microcolumn extraction and sequential injection stirred-flow cell extraction.</p> <p>María Rosende, Warunya Boonjob, Manuel Miró, Víctor Cerdà</p>	<p>TS-7, P-2</p>
<p>Real-time PCR quantification as a useful tool to examine the survival of soil Rhizobia upon exposure to zinc contaminated sewage sludge</p> <p>Miet Boonen, Jan Michiels and Erik Smolders</p>	<p>TS-7, P-3</p>

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